IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of E. C. Leuthardt   Group Art Unit 3736
Serial No.: 10/735,474   Examiner: P. Mallari
Confirmation No. 2473
Filed: December 12, 2003
Entitled: BRAIN COMPUTER INTERFACE

DECLARATION UNDER 37 C.F.R. § 1.131

I, Eric C. Leuthardt, declare and state as follows:

1. I am a co-inventor of the subject matter claimed in U.S. Patent Application 10/735,474 entitled, "BRAIN COMPUTER INTERFACE," which was filed December 12, 2003.

2. U.S. Patent Application Publication No. US 2005/0113744 A1 was cited against claims of the subject application in an Office Action dated July 11, 2005. U.S. Patent Application Publication No. US 2005/0113744 A1 has a priority date of November 21, 2003, which is twenty days before the priority date of the subject application.

3. Attached as Exhibit A is a copy of my laboratory notes dated March 7, 2003 showing results for a Screening Protocol conducted with subject JJ using the Brain Computer Interface of the subject patent application.

4. Attached as Exhibit B is a copy of my laboratory notes dated May 21, 2003 showing results for a Screening Protocol conducted with subject DW using the Brain Computer Interface of the subject patent application.

5. Based on the attached exhibits, it is evident I and my co-inventors constructively reduced to practice the invention recited in the claims of the subject application before the priority date of U.S. Patent Application Publication No. US 2005/0113744 A1 and diligently pursued filing U.S. Patent Application 10/735,474 during a period of time beginning before the priority date of U.S. Patent Application Publication No. US 2005/0113744 A1 and lasting at least until the filing date of Application Ser. No U.S. Patent Application 10/735,474 .

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4. I hereby declare that the statements made of my own knowledge are true and that all statements made on information or belief are believed to be true. I acknowledge that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. § 1001) and may jeopardize the validity of this application or any patent issuing therefrom.

Date: _____11/10/05_____   _____

Eric C. Leuthardt, M.D.

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EXHIBIT A

Purpose: **Screening Protocol St. Louis 03/07/2003**

Initials: JJ

Date: 3/7/02

Technician: Eric Leuthardt

Run	Duration	Task	.prm File	Comments
1	1 min	resting with eyes open	base60	
2	1 min	resting with eyes closed	base60	Moved @ arm
3	2 min	opening and closing left/right hand	horizontal	Did well
4	2 min	imagining opening and closing left/right hand	horizontal	Focused well
5	2 min	protrude tongue in and out	onetarget	Protruded tongue
6	2 min	imagining to protrude tongue in and out	onetarget	Seemed more distracted
7	2 min	saying a word "move"	onetarget	Said word only once
8	2 min	imagine saying a word "move"	onetarget	
9	3 min	joystick task	joystick	
0	2 min	opening and closing left/right hand	horizontal	S: an excessive arm movement
1	2 min	imagining opening and closing left/right hand	horizontal	
)	2 min	protrude tongue in and out	onetarget	inconsistent - did it constantly
)	2 min	imagining to protrude tongue in and out	onetarget	Somewhat hyperkinetic
1	2 min	saying a word "move"	onetarget	Somewhat inconsistent
'	2 min	imagine saying a word "move"	onetarget	Stayed focused
)	3 min	joystick task	joystick	did well
	2 min	opening and closing left/right hand	horizontal	inconsistent

(18)	2 min	imagining opening and closing left/right hand	horizontal	
(19)	2 min	protrude tongue in and out	onetarget	
(20)	2 min	imagining to protrude tongue in and out	onetarget	*seconds*
(21)	2 min	saying a word "move"	onetarget	
(22)	2 min	Imagine saying a word "move"	onetarget	
23	3 min	joystick task	joystick	

VERY PERSEVERATIVE → goes by 4 step points

vL:

– JJ is finally recovered enough to complete all the tasks required
for the screening protocol. The protocol is attached above.
He is somewhat tired and p-pursue here with the tasks.
– Data acquired is good.
– We will attempt to close loop tomorrow.

– Note: we have completed building the computer
Useful pin out diagrams for is uled in back

re: THE FILTERS IN THE ACQUISITION
COMPUTER AND THE ANALOG COMPUTER
WERE ON. THIS PROBABLY MEANS
THAT FREQUENCIES ABOVE 70 Hz
WERE FILTERED OUT.

EXHIBIT B

Session DW 001
Date: 5/21/03 — 5/22
Screening Session: 00 1

Run		Task	.prm file	Comments
001	✓	Resting eyes open	Base60	did well
002	✓	Resting eyes closed	Base60	did well
003	✓	Open closing right/left hand	horizontal	did well
004	✓	Imagine Open closing right/left hand	horizontal	too fast
005	✓	Protrude tongue in and out	Onetarget	did well
006	✓	Imagine protrude tongue in and out	Onetarget	did well
007	✓	Say word move	Onetarget	did well
008 (5/22/03	w:s	Imagine saying word move	Onetarget	Network crashed (5/22)
009	✓	joystick	joystick	did well
0	✓	Open closing right/left hand	horizontal	did well
011	✓	Imagine Open closing right/left hand	horizontal	did well
012	✓	Protrude tongue in and out	Onetarget	did well
013	✓	Imagine protrude tongue in and out	Onetarget	did well
014	✓	Say word move	Onetarget	did well
015	✓	Imagine saying word move	Onetarget	did well
016	✓	joystick	joystick	did well
017	✓	Open closing right/left hand	horizontal	did well
018	✓	Imagine Open closing right/left hand	horizontal	did well
019	✓	Protrude tongue in and out	Onetarget	did well
020	✓	Imagine protrude tongue in and out	Onetarget	falling asleep
021	✓	Say word move	Onetarget	did well
022	✓	Imagine saying word move	Onetarget	did well
023	✓	joystick	joystick	did well
024		joystick	—	did well

Pre-Testing Check List — 5/21/05 : DW	
✓	Unplug Bed
✓	Unplug Fan and turn off TV
✗	Use cortical lead as reference (most inactive lead) requires tech assistance
✗	Change the HIGH filter settings on the acquisition computer (in EEG monitor lab) to OFF
-	Make sure that the acquisition frequency is set at 500 HZ
	Uncheck the analog printer filter settings on the BCI computer
	Names of Individuals involved :

Eric Leuthardt   Note = reference = scalp
Gerwin Schalk
Dan Moran

Post Testing Check List	
	Make sure name and run are correct following each run
	Make sure patient is reconnected to local network and being monitored

Note : In checking parameter files we noted that the last one was sampled @ 300Hz. Therefore we used to re√ data according to 300Hz. Because reanalysis analyzed the data according to

To : Add to check list — file passed pm parameters

┌─────────┐
│ SOURCE │
└─────────┘

   ✳   Sampling rate   500
       Software channels 32
       Sample Block size 20

┌─────────────┐
│ MEM FILTER │
└─────────────┘

       Bandwidth 2
       Model order 18
       MEM window 7